

**SUMMARY OF INDUSTRY ANALYST
PROJECTIONS OF SUBSCRIBERSHIP TO CABLE MODEM
SERVICE VERSUS DSL SERVICE**

Information source:	2000	2001	2002	2003	2004	2005
Forrester (10/00)						
Cable Modem Subscribers (millions)	3.74 (75%)	7.76 (72%)	11.42 (63%)	15.81 (61%)	19.43 (58%)	22.42 (58%)
DSL Subscribers (million)	1.25 (25%)	2.96 (28%)	6.61 (37%)	10.07 (39%)	14.06 (42%)	17.75 (44%)
TOTAL	4.99	10.72	18.03	25.88	33.49	40.17
Yankee Group (3/01)						
Cable Modem Subscribers (millions)	3.7 (69%)	6.2 (69%)	8.6 (66%)	10.9 (63%)	13.1 (61%)	15.1 (59%)
DSL Subscribers (millions)	1.7 (31%)	2.8 (31%)	4.5 (34%)	6.3 (37%)	8.4 (39%)	10.5 (41%)
TOTAL	5.4	9.0	13.1	17.2	21.5	25.6
Gartner Dataquest (6/00; pub. 12/00)						
Cable Modem Subscribers (millions)	3.35 (69%)	5.87 (66%)	8.80 (62%)	11.45 (60%)	13.74 (58%)	n/a
DSL Subscribers (millions)	1.49 (31%)	3.00 (34%)	5.32 (38%)	7.52 (40%)	9.81 (42%)	n/a
TOTAL	4.84	8.87	14.12	18.97	23.55	
Jupiter (00Q4)						
Cable Modem Subscribers (millions)	3.38 (74%)	5.54 (69%)	7.87 (64%)	10.12 (60%)	12.09 (57%)	13.84 (54%)
DSL Subscribers (millions)	1.19 (26%)	2.53 (31%)	4.44 (36%)	6.76 (40%)	9.29 (43%)	11.76 (46%)
TOTAL	4.57	8.07	12.31	16.88	21.38	25.6

The Broadband Market

- The broadband access services market is fully competitive

“The record before us, which shows a continuing increase in consumer broadband choices within and among the various delivery technologies — xDSL, cable modems, satellite, fixed wireless, and mobile wireless, suggests that no group of firms or technology will likely be able to dominate the provision of broadband services.” (FCC)

- Cable Operators serve more than 70% of all residential broadband customers
- Forecasted subscribers for 2001(*source: Yankee Group*):
 - 6.2 Million U.S. households access the Internet via high-speed cable modems
 - 2.8 Million U.S. households access the Internet via xDSL technology
- ILECs are not the dominant broadband services provider
- ILECs are the new entrants

Consumer Demand Balloons for Cable Modem

- Cable modems grew 144% last year
- Cable is ahead of ILECs in network improvements needed to provide broadband access services
 - “They are over the worst of it in terms of upgrading their systems” per Elliot Hamilton of Strategis Group
 - Cable industry has upgraded 74% of its plant
 - DSL equipment installed in 38-45% of ILEC COs
- Cable-delivered broadband access available in over 2x as many households as DSL

“So...What’s The Issue?”

- Verizon is investigating the implications of deploying DSL capabilities at the RT
- Existing network and OSS cannot support DSL at the RT
- Deploying DSL at remote terminals is complex and costly
- Cable modem services set an upper limit for retail prices in the market and, as a consequence, DSL wholesale margins are slim

“So...What’s The Issue?” (Continued)

- Flexibility is key and different architectures and various deployment strategies may be appropriate
 - Integrated DLC
 - New installations
 - Overlay
 - Retrofit existing RTs
 - Stand alone DSLAMs
 - Fiber to the home
 - Fixed wireless

“So...What’s The Issue?” (Continued)

- RT and CO Deployment must be harmonized to economically meet forecasted demand
 - NGDLC
 - Transport
 - Packet switching
 - Hardware
 - Software
 - OSSs
 - Back office capabilities

Existing and Proposed Policies Are Hindering the Deployment of DSL Based Services

- Application of 251/252
 - Competitive offering
- Sale of component parts results in stranded investment and upward pressure on other services
 - Further unbundling
 - Plug & Play - addressed by Alcatel during PARTS Workshop (March 21, 2001):
 - “Only Litespan cards can be installed in Litespan
 - Proprietary shelf, backplane, and software
 - Software is copyright protected, issued under restricted license
 - Contracts and warranties prohibit foreign equipment”
 - Access to packet switching
 - Collocation space at the RT
- Wholesale and retail services must be priced to recover costs and a reasonable return

Broadband Requires A Different Approach

- Local broadband telecommunications services are different from local voice services
- Regulation should not tip the competitive balance in favor of one technology
- The Act explicitly mandates a technology-neutral stance
- Competition, not regulation should determine which technologies and services succeed in the marketplace.



News Release

Editor's note: Today's briefing with the financial community will be web cast live on the Internet beginning at 1:00 p.m. EDT. AT&T will present a comprehensive financial and operational update on its Broadband business via conference call and web cast. Executive team members from AT&T and AT&T Broadband will present the current status and future view of the business and answer questions. The slide presentation referenced during the briefing will be available via AT&T's web site shortly before 1:00 p.m. Presentation slides and audio will also be available for downloading. To access the call, please dial 877-209-9920 (domestic) or 612-332-0725 (international) or web cast at www.att.com/ir. A replay will be available beginning at 5:00 p.m. EDT on Tuesday until midnight on Thursday, July 26. To access the replay, please visit www.att.com/ir or dial 800-475-6701, access code: 595485 (domestic) or 320-365-3844, access code: 595485 (international).

FOR RELEASE TUESDAY, JULY 24, 2001

AT&T Details Results and Outlines Growth Plans For Broadband Business "More Than a Cable TV Company"

TO VIEW THE PRESENTATION

NEW YORK -- In a teleconference briefing today, AT&T presented a comprehensive financial and operational update on the company's broadband business.

"We want investors to see that AT&T Broadband is not just the nation's largest cable TV company but the leading provider of integrated residential broadband services," said AT&T Chairman and CEO C. Michael Armstrong.

AT&T said its Broadband unit is meeting or exceeding its targets for clustering systems, upgrading facilities, and accelerating the rollout of advanced new services.

"AT&T Broadband is only a year old, and it is already the industry leader in providing advanced digital services such as telephony, high-speed data and digital video," Armstrong said. "Transforming two cable companies into a leading broadband business certainly put some pressure on margins, but it was a strategic decision to maximize the growth potential of our cable infrastructure."

"Revenue from advanced services grew more than 60 percent compared to last year," said Daniel E. Somers, President and CEO of AT&T Broadband. "Digital video is highly profitable. High-speed data is expected to break even in the third quarter. And telephony is expected to break even in nine months. Our investment in advanced services is paying off."

Advanced services drove AT&T Broadband's average revenue per subscriber to \$55.34 in the second quarter, well above the industry average. The company said it expects overall revenue growth for the full year to be at a mid-teens rate.

The unit's continuing rapid growth of subscribers for new services was also seen in the second quarter when AT&T Broadband added, on a pro forma basis, about 553,000 advanced service subscribers. This represented an increase of approximately 46 percent from the number added in the year-ago quarter. As of June 30, AT&T Broadband had 848,000 broadband telephony customers, 1.3 million high-speed data customers and 3.1 million digital video customers for a total of 5.3 million advanced service subscribers.

AT&T Broadband plans to spend \$3.6 billion in capital in 2001, with the majority focused on providing advanced services and plant upgrades.

The company said the total number of potential customers who subscribe to its advanced services has significantly increased since it acquired TCI and MediaOne, and AT&T Broadband outpaces the industry in providing these new services across its markets.

"When we acquired TCI, it had an 11 percent digital video penetration level, a 2 percent high-speed data penetration level and no broadband telephony customers," said Somers. "MediaOne started with 3 percent digital video penetration, 5 percent high-speed data penetration and 4 percent broadband telephony penetration. Today, we have a 22 percent digital video penetration level, a 10 percent high-speed data penetration and 14 percent broadband telephony penetration. We are well on our way to reaching our 2005 goal of mid- 50 percent penetration of digital video, high 20 percent for high-speed data and mid 30 percent for broadband telephony."

The company noted that its decision to simultaneously deploy all three products, including the start-up costs and the expenses related to the dramatic growth of broadband telephony and high-speed data impacted profit margins. However, the company said that it expects to improve its margin by 300 basis points this year.

"In the second quarter, excluding a \$100 million restructuring charge we took to further streamline our cost structure, our EBITDA margin, excluding other income, was 23.4 percent, up substantially from the 18.3 percent achieved in the first quarter," Somers said. "We are committed to delivering \$500 million in annualized margin improvement by year-end 2001 and to achieve industry benchmark margins within the next three years."

In the past year as it integrated the operations of TCI with MediaOne, the company said it reduced more than 200 cable head-ends to 40, consolidated 200 call centers into 30 and decreased its employee base from 53,000 to 43,000.

AT&T said the Broadband unit has upgraded and reconfigured its systems with a focus on major markets. AT&T Broadband moved aggressively to upgrade more than 70 percent of its cable network – 127,000 plant miles – by the end of the second quarter 2001. And through strategic system clustering, the company said more than 83 percent of AT&T Broadband's customers are now in 12 of the top 20 markets.

AT&T Broadband acknowledged that its 56 percent basic video penetration lags the industry's 63 percent level. The company said the unit is taking action to increase video penetration at or above industry growth rates for the next 2 to 3 years.

As a result of all of these actions, AT&T Broadband said it expects to be free cash flow positive by

year-end 2003.

The foregoing are "forward-looking statements" which are based on management's beliefs as well as on a number of assumptions concerning future events made by and information currently available to management. Readers are cautioned not to put undue reliance on such forward-looking statements, which are not a guarantee of performance and are subject to a number of uncertainties and other factors, many of which are outside AT&T's control, that could cause actual results to differ materially from such statements. These factors include the rate of decline of traditional long distance voice services, technology change and substitution, the actions of competitors in all segments in setting prices, conditions of excess capacity, and rates of implementation of regulatory changes that favor competitors and promote remonopolization. For a more detailed description of the factors that could cause actual results to differ from forecast, please see AT&T's filings with the Securities and Exchange Commission. AT&T disclaims any intention or obligation to update or revise any forward-looking statements, whether as a result of new information, future events or otherwise.

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FOR DISCUSSION PURPOSES IN NY PSC CASE NO. 00-C-0127

Service Descriptions
Line Splitting –January 26, 2001

These service descriptions focus on the following two specific service scenarios:

2. An existing Verizon voice customer with a DLEC provided DSL moves to a competitive voice provider and wishes to retain the same DLEC provided data service; and
3. An existing UNE-P customer wishes to add data service.

The service descriptions set forth below are intended to reflect the continuing OSS line splitting working group discussions, as Verizon understands them. The objective of the OSS line-splitting working group is to reach closure on these service descriptions. The service descriptions become the source document for purposes of developing the specific IS requirements¹.

Verizon is not offering to provide 3rd party billing and collection activities on behalf of any CLEC, DLEC or another party (i.e., an ISP) for any of the scenarios discussed herein.

The working group will develop the timelines associated with the overall OSS development and will include presentations on a regular basis at NY Collaboratives that will communicate the progress of the initiatives. Due to the various complexities of line splitting, it is Verizon's intent to carefully plan each phase of line splitting including: pre-ordering, ordering, provisioning, billing, and order activity including modifications and disconnects.

The Service Descriptions provided here are works in progress. As aspects of the work flows and OSS processes necessary for line splitting are analyzed, and as layers of complexity are peeled back, additional work efforts are likely to be identified. The Service Descriptions are a reflection of where Verizon is in its analysis as of January 5, 2001.

¹ *The provision of the Draft Service Descriptions for Line Sharing included in this document does not constitute a waiver of Verizon's legal rights and remedies. Verizon specifically reserves all its legal rights and remedies including all legal issues addressed in Verizon's Initial and Reply Briefs recently submitted in the litigation phase of Case 00-C-0127*

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This document may change going forward.

A. Description of Service Scenarios

Service Scenario 2: An existing Verizon voice customer with a DLEC provided DSL moves to a competitive voice provider and wishes to retain the same DLEC provided data service.

Status of accounts pre-line splitting

1. The end user is receiving a Verizon retail bill for their voice service and has a Verizon CSR on record; the DLEC has access to the CSR.
2. The end user is receiving a data bill from the DLEC or from an ISP.
3. Verizon has two accounts of record established: 1) a retail record, and 2) a Wholesale DLEC record which bills for a Line Share arrangement.
4. The end user controls activity to their voice account including ordering, modifications, disconnects and repair activity.
5. The DLEC controls activity to the data service and Wholesale Line Share account including ordering, modifications, disconnects and repair activity.
6. The DLEC controls CFA assignments of their splitter equipment.
7. Voice testing is performed by Verizon and data testing is provided by the DLEC.

The VLEC may use existing “migrate as specified” UNE-P ordering processes and forms to migrate a VZ voice customer with data (line sharing) to CLEC voice service with data (line splitting).

For line splitting, there are two initial alternatives that must be considered:

- (Alternative 1) The end user migrates to a CLEC voice provider and wishes to retain the same DLEC for data service; the data provider is one and the same as the CLEC voice provider.
- (Alternative 2) The end user migrates to a CLEC voice provider and wishes to retain the same DLEC for data service; the data provider is different from the CLEC voice provider. In both alternatives the VLEC is responsible for converting the Verizon voice customer to the UNE P line and assuring that the appropriate DLEC service is associated.

Alternative 1:

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In this arrangement the CLEC is both a voice and data provider.

The following activities would occur to implement this alternative:

1. When the LSR is issued, the retail service is migrated to a 2W Line Split loop record and a Line Split port record to support the continuation of data service.
2. The LSR will contain the SBN and existing circuit number.
3. VZ will return a new circuit ID associated with the 2W Line Split loop to the VLEC.
4. The VLEC is responsible for maintaining a cross-reference of the 'new' circuit ID associated with the 2W Line Split loop to the TN associated with the switch port.
5. The VLEC would control activity to the voice and data including ordering, modifications, disconnects and repair activity.
6. Subsequently, if the VLEC wishes to add switch related features to the account, it can utilize established PS forms (TN based).
7. A move or disconnect order of the 2W Line Split loop must be sent to VZ on the established LS form (based on the circuit ID.).
8. The VLEC owns the CSR.

Alternative 2 (Permutation 1- The VLEC is in control):

When the Verizon voice customer is converted to a VLEC provider and retains their existing DLEC for data service, and if the data provider is different from the VLEC, then the VLEC submits the LSR using its own AECN and also populates the LSP authorization field with the AECN of the DLEC. The Voice CLEC and DATA CLEC are responsible for maintaining a cross reference of the Circuit ID associated with the 2W Line Split loop to the TN associated with the switch port. All other activities follow as stated above in Alternative 1.

Status of the account post line-splitting, would be as follows:

1. The CLEC voice provider receives a Wholesale bill for the appropriate voice, data, and line splitting elements billed. The DLEC receives a wholesale bill for the collocation and splitter billing elements.
2. A CSR is owned by the voice CLEC and access to the CSR is provided consistent with the rules developed in CLEC-to-CLEC negotiations.

Nothing done in these scenarios or permutations affects existing collocation or splitter billing charges at this time.

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Verizon would not be involved in the following activities; this information is being provided for clarity purposes. (Verizon is not providing a third party billing arrangement.) CLECs and DLECs/ISPs are responsible for these activities.

- The end user receives a voice bill from the CLEC;
- the end user receives a data bill from the CLEC, DLEC or ISP;
- disconnect arrangements and notifications would need to be coordinated between the CLEC/DLEC/ISP and Verizon would need to be notified of disconnect activity.

Service Scenario 3: An existing UNE-P customer wishes to add data service.

The CLEC may migrate an existing UNE-P combination to a Line Splitting arrangement. The Loop portion of the arrangement must be xDSL compatible and will be connected to a DLEC or third party splitter (ANSI T1.413 or MVL compliant). The CLEC or third-party CLEC shall combine, in their Collocation arrangement, the analog circuit-switched voiceband portion of the xDSL compatible Loop with unbundled local switching and unbundled transport and shall terminate the high frequency data portion in a CLEC or third-party CLEC provided DSLAM.

The status of the UNE-P account pre-line splitting, is as follows:

1. The end user is receiving a CLEC bill for their voice service.
2. The CLEC owns the CSR.
3. Verizon has one account of record established: a Wholesale CLEC UNE-P record which bills the CLEC for a UNE-P arrangement (bills are received from Verizon by the CLEC for the UNE loop, the UNE switch port and for UNE transport).
4. The CLEC controls activity to the voice account including ordering, modifications, disconnects and repair activity.
5. Voice testing is performed by the CLEC.
6. CFA's do not exist for current UNE-P arrangements.

Permutation 2: The DLEC is acting on behalf of the voice CLEC:

When the DLEC is acting on behalf of the Voice CLEC, then:

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1. A loop pre-qualification of the TN/Address would be performed by the data CLEC.
2. If the loop is not on a qualified facility, either party may have the option to request conditioning under the Digital Designed Loop product line.
3. If conditioning is performed, the Voice CLEC would be billed by Verizon for conditioning activity.
4. If the facility is qualified, based on the type of loop being ordered, then the DLEC would issue an LSR using its own AECN and SBN to order line splitting.
5. The DLEC submits the LSR under its own AECN and also populates the LS authorization field with the AECN of the VLEC.
6. The LSR would trigger the conversion of the existing UNE P arrangement to a 2W Line Split loop record and a Line Split port record to support the addition of data.
7. The LSR would contain the voice CLEC SBN and DLEC CFA information.
8. VZ will return a circuit ID associated with the 2W Line Split loop to the server ID that the line splitting order was received from.
9. The voice CLEC and the data CLEC are responsible for maintaining a cross-reference of the circuit ID associated with the 2W Line Split loop to the TN associated with the switch port.
10. All orders would be placed by either the voice CLEC or the DLEC including new orders, modifications, disconnects and repair activity using their own identification, ordering codes and various systems access rights.
11. Subsequently, if the voice CLEC wishes to add switch related features to the account, it can utilize established PS forms (TN based).
12. A move or disconnect order of the 2W Line Split loop must be sent to VZ on the established LS form (based on the circuit ID). The data CLEC will issue the LS form utilizing its own AECN and SBN.
13. When the order is sent through EDI, Verizon will return FOC to the server ID from which the order was sent.
14. Either party would be responsible for voice and data testing and interfacing with Verizon on an integrated basis under their own identification, ordering codes and various systems access rights.
15. The VLEC will report trouble on the TN with the associated circuit identification in remarks. The DLEC will report trouble on the circuit identification number with the associated TN in remarks.

Status of the account post line-splitting, after either of the two permutations was exercised, would be as follows:

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1. The voice CLEC would be responsible for paying Verizon for all line related voice, data, and line splitting elements billed. Verizon would continue its normal billing to the DLEC for collocation and splitter billing elements.
2. A 2W Line Split loop record and a Line Split port record is on file for provisioning/inventory / maintenance purposes.
3. A CSR is owned by the voice CLEC and access to the CSR is provided consistent with the rules developed in CLEC-to-CLEC negotiations.

Nothing done in these scenarios or permutations affects existing collocation or splitter billing charges at this time.

Verizon would not be involved in the following activities; this information is being provided for clarity purposes. (Verizon is not providing a third party billing arrangement.) CLECs and DLECs/ISPs are responsible for these activities.

- The end user receives a CLEC bill for their voice service;
- the end user receives a CLEC, DLEC or ISP bill for their data service;
- disconnect arrangements and notifications would need to be coordinated between the CLEC/DLEC/ISP and Verizon would need to be notified of disconnect activity.

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B. OSS and Process Changes Required to Implement Line Splitting

The operational impacts associated with line splitting are extensive. New Verizon records and new relationships between Retail and Wholesale and between Wholesale and Wholesale accounts need to be established.

Several of the identified impacts and new processes/records that need to be established with Line Splitting, include but are not limited to the following:

- establish a 2W Line Split Loop including any new NC/NCI, Service Modifier and other associated codes
- develop the ability and processes (including system processes) to convert a 2W analog loop to a 2W Line Split Loop
- analyze potential LSR modifications including Telcordia approved valid values

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- establish the ability for a DLEC to have input into a CLEC Line Split record , by using its own identification, ordering codes and various system access rights
- analyze voice and data testing processes and interfaces
- develop coordination activities associated with conversions from a Verizon 2W analog loop to a voice CLEC provided loop and Line Split arrangement
- develop processes and timelines for inputs to Verizon on various activities such as disconnects
- develop repair reporting activities for line splitting situations
- Relationship information is communicated not only on records but also to the Verizon work groups associated with these types of orders
- Business rules are impacted
- Change control requirements are considered

This list does not address CLEC/DLEC coordination activities that must occur, such as coordination of CFA, date dues, communications to Verizon, etc. These issues have been identified in updates to the service descriptions.

A tremendous amount of coordination between all parties is taking place when the DLEC controls orders, modifications, disconnects, etc. on a VLEC account using its own identification and codes. Coordination efforts and issues associated with provisioning a new arrangement are significant here including readiness from provisioning aspects as well as readiness on the date due.

OSS modifications, M&Ps, and internal and external training are extensive and required.

SECTIONS TO BE DEVELOPED:

Provisioning (including Splitter Designations and related activities)
Spectrum Management
Technical References
Operational Impacts

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